

FORMWORK METALLIC WITH ACCESSORIES FOR MOLDING IN CONCRETE

FIELD OF THE INVENTION

The present invention relates to a formwork metallic for the molding
 5 in concrete in construction works and substructure. The invention is
 easy handling for uses numerous, with characteristic modular to
 facilitate the connection between them by means accessories metallic.
 These formworks metallic are modules which form steel sheets with
 reinforcements and in size according the requirements in work. This
 10 formworks by its vicinity them, gives the form to concrete, specially
 walls and partition walls.

The formwork is made in steel sheet (2 to 3 mm thick) and the modules
 formed can have a weight to 43 kg (60 x 240 cm) and dimensions wich
 15 varies from 5 to 80 cm in wide and from 20 to 240cm in height, with
 increasing scales of 5 cm in the measures.

BRIEF DESCRIPTION OF THE DRAWING

The characteristic and advantages in the formwork of the present
 20 invention appear more cleary on reading the following description
 given by away of non limiting indication and made with reference to
 the accompanying drawings, in which:

Figure 1 presents a module metallic, basic for the forwork of the
 25 invention;

Figure 2 is an accessory angular metallic shaped in L (17), which
 enables the external turn between adjacent modules;

30 Figure 3 is an accessory, or named corner cupboard (28) type box to
 enables the internal turn between adjacent modules;

Figure 4 (4a-4e) present a kit accessories metallic used in the
 building of formwork, which comprises: sheets, press with grips,
 35 cotter pins, distancing and arrangers, and;

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Figure 5 is an example of modules formwork in parallel vicinity with some accessories form assembly.

5 The figure 6 present the use of the tie or distanciador (18)

The figure 7 present the fixation of the element aligner (21) through a press or gag (22)

10 The figure 8 present the connections or chapetas (25) that penetrate the perforations of the encofrado.

The figure 9 present the reinforcements or nervaduras in V (15) that it be on the panel or sheet.

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The figures 10 and 11 show the sheet (11) in their longitude, the plane surface of the sheet (10) and the horizontal reinforcements (16).

20 The figure 12 present the insurance (40) of the encofrado that has the objective to blocking the pin (20) and the tie (18), in addition to avoid the exit and fall of these, the pin (20) and the tie (18) during the casting of concrete.

25 Figure 1 shows a formwork metallic, which comprises a frame (10) made is steel sheet (11) with shape rectangular and measures according the requirements, said sheet surrounded in its length by a metallic members longitudinal or props (12), and across the same close-props (13) width-ways with the end edges to conection, which has a cuts
30 angular (Fig. 5).

Each member or prop (12) which surrounds the sheet (11) has in the length a holes (14) spaced equidistant. The plane surface of sheet (10) is reinforced with metallic elements (15) with profile in "V",
35 and in the wide has a reinforcements or struts (16) perpendiculars to previous. The module or formwork couples or splice with others similar through an angular profile (17) (Fig. 2), which acts like a coupling

module to enable the external turn with the module adjacent (10') (Fig. 1).

The angle (17) has the same length as module (10) and comprises holes in his faces. The modules (formworks) keeps during installation a distance parallel with other module, where said space enables to empty the concrete to form the wall or partition walls in the respective building.

10 Other elements to couple is the named corner cupboard module, type box (28) (Fig. 3), which is a metallic frame that enables the internal turn in modules adjacent. This module (28) has a metallic wall (29) and (30), drilled to facilitate the passage of pins or sheet points, so will see therefore.

15 The coupling between adjacent modules (Fig. 5) is made trough an element form linkage named distancing or "tie" (18) (Fig.4 c); said tie is a sheet metallic from 5 to 120 cm, dored in its ends with holes (19) (10 mm diameter) to enable the coupling tight of an element like
20 a hook or scoter pin (20) (Fig. 4 b), which presents as shaped in rod with an angular folding. This "tie" or distancing regulates the space between two modules with parallel vicinity, through a space "e" (Fig. 5), filled with the concrete.

25 When two modules are intalled, its proceeded to an alignment to provide verticality them and structural stiffness, through an element to align (21) (Fig. 4 d), said element (21) comprises a metallic profile shape in "U" with variable length, which is fixed in the formwork is wide with a press with grips (22) (fig. 4 e), said press
30 having a screw (23) with hand pushing to press the free plane of distancing against a metallic hooks or graffs (24), folded to enable it penetration and fixing in the holes (14) in the frame of formworks.

The insurance (40) of the encofrado that has the objective to blocking
35 the pin (20) and the tie (18), in addition to avoid the exit and fall of these, the pin (20) and the tie (18) during the casting of concrete. In turn it is designed to transfer the load from the

concrete to those profiles "U" and structural reinforcements of the module.

5 The linkage between modules, it's complemented through linkage elements or sheets (25) (Fig. 4 a) which comprises a platen (26) with a slot axial and a folding in angle and a rod welded (27) with an end folded in order to penetrate the holes in the formwork's edges.

10 An element placed in the corners in the module or formwork, type sure plate, welded there, enables the passage to pin (20), so to assure the distancing or "tie" (18) to adjacent module.

15 The modules of the present invention can be installed in order to the following prescriptions:

- a) To apply the demoulding material to modules,
- b) Start the timbering of formwork according the modulation in each work or building,
- c) To install and fix the external linkage angle (17) to adjacent modules,
- 20 d) To install sheets (25) in the holes, fixing the slot of platen (26) and the point of rod (26) in said holes,
- e) To install the distancing or tie (18), fixing the parallel modules through the hole (19) in said sheet with the scooter pin (20) on the
- 25 sure plate (30) in each module's corner,
- f) Adjust the element to align (21) through the press (22) of compare the verticality and alignment before to empty the concrete.

30 The face smooth in the formwork is coated with substance for removing the timbering before to empty the concrete, to avoid the adherence of said concrete in the formwork. This coat is washed with pressure when the empty is finished.

35 The stiffness in the formwork is secured by means of cotter pins for the distancing and sheets in the holes in the frame of module. This modules was making in sizes of 240cm in length and wide from 5 to

80cm. The corner cupboard has from (20) to 240cm in length at same the angles for external turn.

The weight of module accordly the measures selectd varies from 3kg (5 x 120 cm) to 43kg (60 x 240cm).

ADVANTAGE

10 An advantage of present invention is the low weight and easy use, and transport. Since the basic module dont exceeds the 25kg although modules with 240 x 60cm can wegh 43kg, factor easy usable for any worker.

15 The module provides a smooth finished or textured of concrete in view.

Can be built the name "irregular modules" in sizes when the circumstances it required.

20 Manual installation without need of crane towers.

Easy transport to work or building given it form as boxes.

Drawing according regulation seismic NSR-98.

25 Avoid waste or scraps and rubbles.

The emploeyes enable the control of tools and materials in work.

30 To enable the reuse, given tha characteristic metallic.

Cheap manufacturing costs.

Uses versatil to built homes or public works.

35 The formwork is washable after empty and remove form wall.

The formwork is storeble with in small space.

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